Five endangered new species of Myoporaceae from south-western Australia

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Abstract

Chinnock, R.J. Five endangered new species of Myoporaceae from south-western Australia. Nuytsia 5(3): 391-400 (1986). Five new species of Myoporaceae, namely *Myoporum turbinatum, Eremophila compressa, E. lactea, E. nivea* and *E. verticillata* are described and illustrated. All species are restricted to relatively small areas within agricultural or potential agricultural regions and are therefore considered to be at serious risk.

Introduction

Under the provisions of the Western Australian Wildlife Act 1950-1979 one hundred Western Australian plants were listed in the Government Gazette on November 14th, 1980 as rare flora. The two *Eremophila* species listed, namely *E. virens* and *E. denticulata,* occur in the South-West Botanical Province (Beard 1980) and are known from relatively few populations. *E. virens,* for example, is known only from one small population of a few hundred individuals.

On March 12th, 1982, a further 36 species were added to, and 4 deleted from the gazetted rare flora schedule. In this listing *Eremophila inflata, E. merrallii, E. microtheca, E. resinosa, E. serpens, E. viscida* and *Myoporum salsoloides* were added and these, like the previously gazetted Myoporaceae, were confined to the South-West Botanical Province and known from relatively few populations. Individual accounts of these rare species are provided by Rye & Hopper (1981) and Patrick & Hopper (1982).

In addition to the 9 Myoporaceae already gazetted as rare flora in Western Australia I have been aware for some time of another 5 species which, in my opinion, should be added to the rare flora schedule as soon as possible. Like those species already gazetted, these species are confined to the South-West Botanical Province in existing agricultural lands or in areas where active vegetation clearance for agricultural expansion is occurring.

Although I will be producing a monograph of the Myoporaceae in the next few years, I consider it appropriate to publish these new species at this stage so that their consideration for gazettal as rare flora can proceed without delay.

Species descriptions

1. **Eremophila compressa** Chinnock, sp. nov. (Figure 1)

Frutex ramis tuberculatis glabris; *foliis* alternis ellipticis obovatis usque oblanceolatis, obtusis, integris vel 2-3-dentibus prope apicem, glabris vel pilis glanduliferis in marginibus dispersis; *corolla* crema extra glabra, lobis acutis vel obtusis; *staminibus* inclusis, glabris; *fructu* sicco compresso, bicylindrico, obtuso, glabro.

Typus: R.J. Chinnock 4988, 11.x.1979 (holo: AD; iso: CANB, K, MEL, MO, NSW, PERTH).

Erect, often spindly shrub, 0.8-2 m tall. *Branches* terete, light to dark-brown, prominently tuberculate, glabrous, obscurely glandular-papillose, viscid at apices. *Leaves* sessile, alternate, erect and often obscuring branch, mid-green, often tinged purplish along margins, elliptic, obovate to oblanceolate, (6)8-16(21) x 2-7 mm, obtuse, but with a small mucro, margins entire or with two to three prominent teeth towards the apex, surfaces smooth or obscurely tuberculate, glabrous or occasionally with scattered glandular hairs along margins, slightly viscid at least when immature. *Flowers* 1 or 2 per axil; pedicel 1-3.5 mm long, straight or curved, slightly flattened, glabrous. *Sepals* 5, valvate, narrowly triangular to triangular, 1-2 x 0.4-0.7 mm, glabrous. *Corolla* 6.5-10.5 mm long, cream, unspotted or yellow-brown spotted in tube, 2-lipped, glabrous except for bearded inside surface of medial lobe of lower lip and tube below it; lobes obtuse but medial lobe of lower lip dilated, emarginate. *Stamens* 4, included, glabrous. *Ovary* ovoid-cylindrical, 1.6-1.8 x 0.6-0.8 mm, pale yellow, bilocular with one ovule per loculus, glabrous; style glabrous. *Fruit* dry, bicylindrical, 3.5-5.5 x 1.5-1.7 mm, compressed, obtuse, surface slightly verrucose, glabrous. *Seed* unknown.

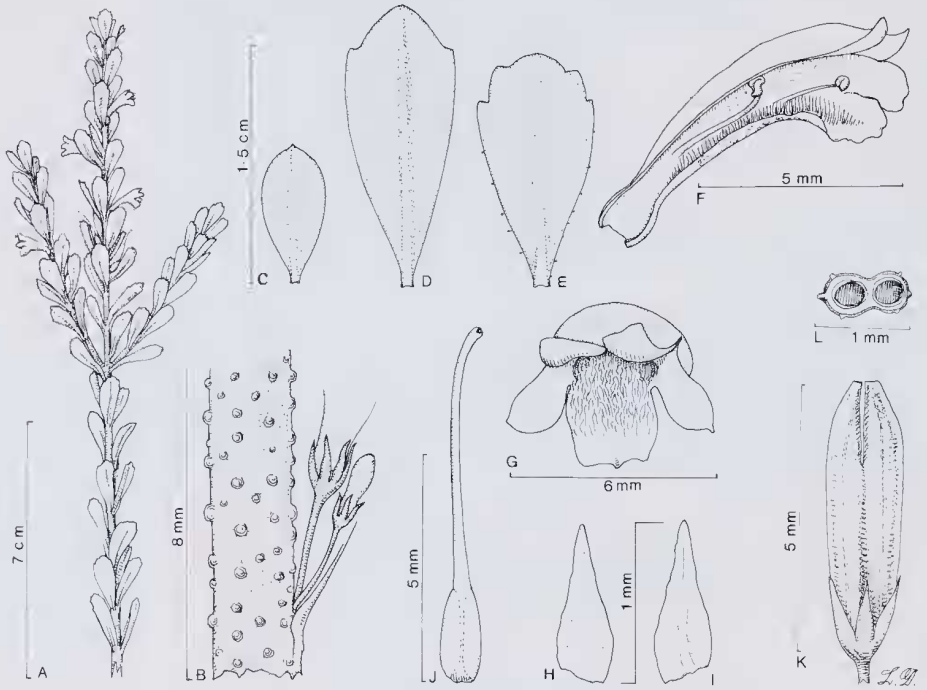


Figure 1. *Eremophila compressa*. A — Habit. B — Enlargement of branch. C to E — Leaf variation. F and G — Side and front view of corolla. H and I — Outer and inner surface of sepal. J — Gynoecium. K and L — Side and cross-section of fruit.

A — I from *Chinnock* 4988; K — L from *Chinnock* 5048.

Specimens examined. WESTERN AUSTRALIA: *W.E. Blackall* 1003, 14.x.1931 (PERTH); *M.A. Burgman* 2587, no date (PERTH); *R.J. Chinnock* 4987, 11.x.1979 (AD); *R.J. Chinnock* 4989, 11.x.1979 (AD); *R.J. Chinnock* 5048, 7.xi.1981 (AD); *R.J. Chinnock* 5452, 7.xi.1981 (AD); *C.F. Davies* 215, 2.v.1963 (PERTH); *C.A. Gardner* s.n., Jan. 1940 (PERTH); *K. Newbey* 6720, 12.iii.1980 (PERTH); *J.W. Wrigley* 5345, 2.xi.1968 (AD, CBG); *J.W. Wrigley* 5817, 12.xi.1968 (AD, CBG).

Distribution and habitat. Eremophila compressa is confined to the eastern part of the Roe Botanical District (Map 1) where it occurs in the vicinity of Grasspatch to the north of Salmon Gums. It is usually found on disturbed brown clay loams adjacent to roads or along the railway line, although one large population was found growing in undisturbed *Eucalyptus* woodland (*Chinnock* 5452).

The Gardner specimen was reputedly collected at Bencubbin. However, this is considered highly unlikely and it is presumed that the locality data provided is incorrect.

Affinities. The structure of the flower and fruit of this species clearly ally it to *E. saligna. E. compressa* differs from this species, however, by its smaller size, prominently tuberculate branches, smaller leaves with at most two or three teeth near the apex and its bicylindrical, obtuse fruit.

Conservation status. Most of the locations at which *E. compressa* is known to occur are on road verges or along railway lines. All populations in these situations consist of relatively few individuals. The only large population of this species occurring in undisturbed *Eucalyptus* woodland (to the west of Salmon Gums) is situated near areas which were cleared during 1981. The conservation status for this species is 2V (after Leigh, Briggs & Hartley 1981).

Etymology. The specific epithet is taken from a feature of the fruit.

2. **Eremophila lactea** Chinnock, sp. nov. (Figure 2)

Frutex erectus glaber maculis prominentibus albis parvis magnisque in ramis foliisque; *foliis* alternis, imbricatis, ellipticis usque oblanceolatis, acutis, glandulifero-pubescentis: *corolla* dilute lilacina, extra dense glandulifero-pubescentia, lobis acutis; *staminibus* inclusis, glabris; *fructu* sicco, ovoideo-oblongo, acuto, crustaceo, villoso.

Typus: R.J. Chinnock 4389, 14.xi.1978 (holo: AD; iso: AD, CANB, K, MEL, MO, NT, PERTH, US, W).

Erect compact or spindly shrub 1-3.5 m high, often weeping when old. *Branchès* erect, subterete and ribbed towards apex, terete in older parts, green becoming light brown in woody parts, non-tuberculate, glabrous, obscurely glandular-papillose, prominently white-blotched at least in upper parts, the blotches consisting of dried exudate. *Leaves* sessile, alternate, erect, overlapping and normally obscuring branch, (7)10-31(44) x 2-6(11) mm, elliptic to oblanceolate, acute, margins entire, surfaces smooth or obscurely glandular-papillose, glabrous, viscid when immature, white-blotched at least towards branch tips, somewhat shiny. *Flowers* 3 or 4 per axil; pedicel 2-3 mm long, flattened, sparsely glandular-pubescent in upper part, often white-blotched. *Sepals* 5, valvate, green, oblong to oblanceolate, 3-5.5(8) x 0.5-1.5 mm, acute often broadly so, veins prominent after flowering, sparsely glandular-pubescent on both surfaces. *Corolla* 8-13.5 mm long, very pale lilac outside, deeper lilac and faintly purple spotted inside tube, 2-lipped, densely glandular-pubescent outside, inside of tube villous and lobes glabrous; lobes obtuse, similar in shape. *Stamens* 4, included, glabrous. *Ovary* ovoid c. 1.5 x 0.8 mm, pale greenish yellow, bilocular with one ovule per loculus, densely villous except for swollen glabrous base; style glabrous except for a few scattered eglandular hairs towards base. *Fruit* dry, ovoid-cylindrical, 3-3.5 x 1.5-2 mm, acute, crustaceous, villous, hairs eglandular. *Seed* unknown.

Specimens examined. WESTERN AUSTRALIA: *R.J. Chinnock* 4392, 14.xi.1978 (AD); *R.J. Chinnock* 4393, 14.xi.1978 (AD); *R. Isaacson* 60, 62, 14.viii.1978 (AD); *T. Loffler* 4, viii.1967 (AD); *K. Newbey* 6760, 16.iii.1980 (PERTH).

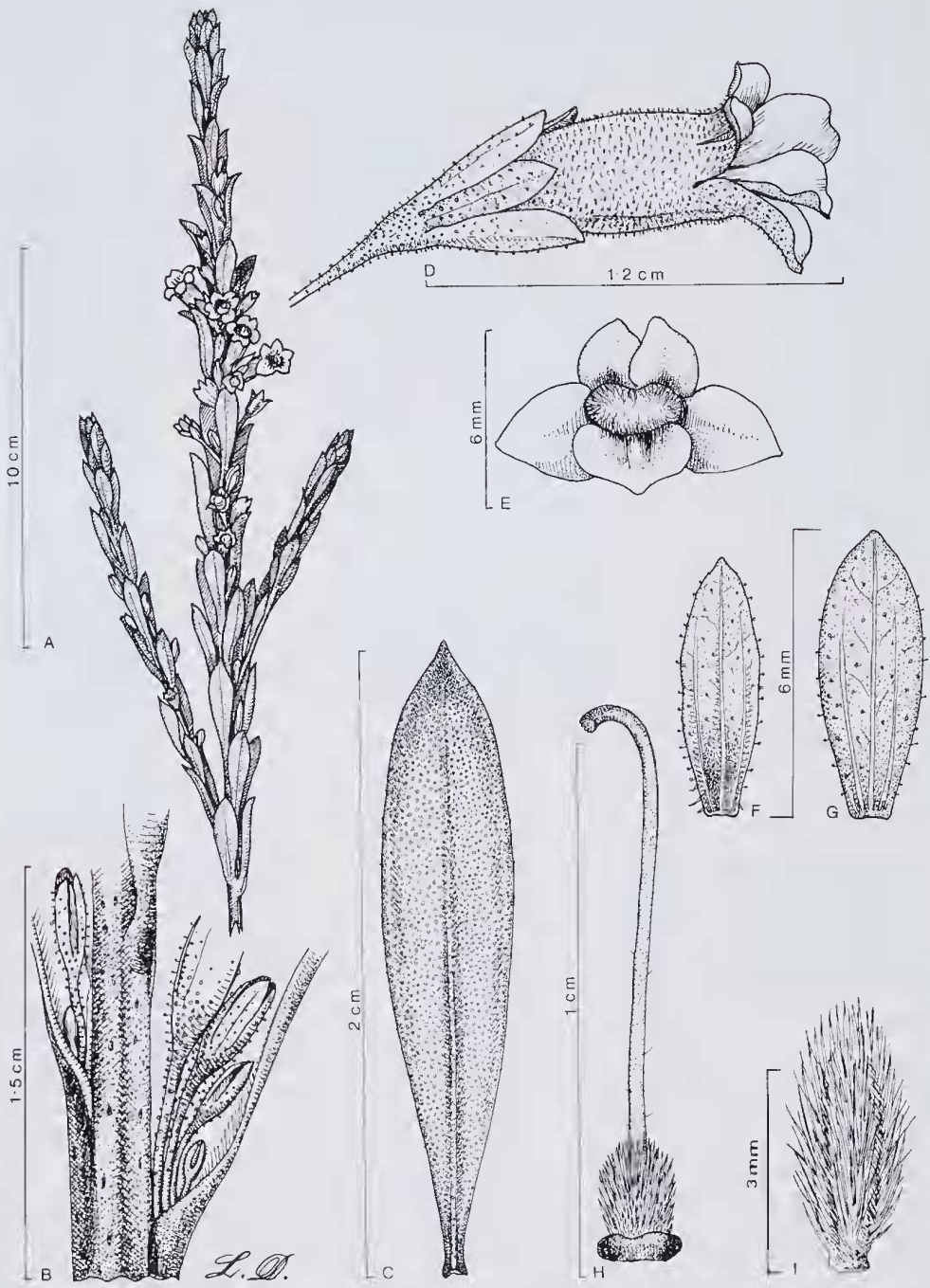


Figure 2. *Eremophila lactea*. A — Habit. B — Enlargement of branch. C — Leaf. D and E — Side and front view of flower. F and G — Sepals outside and inside surfaces, post flowering. H — Gynoecium. I — Fruit. A — I cultivated material, Adelaide.

Distribution and habitat. Eremophila lactea is known only from a small area west of Grasspatch, Roe Botanical District (Map 2) where it grows on light-brown to grey-brown sandy loams in open *Eucalyptus* (including mallee) woodland. It is commonly associated with *Acacia* and *Melaleuca* species.

Affinities. Allied to *Eremophila psilocalyx* F. Muell. (syn. *E. pachyphylla* Diels) but differing in having thinner, broader leaves, a milky exudate on the branches and leaves, smaller sepals and a smaller, glandular-pubescent corolla.

Conservation status. Eremophila lactea has a conservation status of 2V (after Leigh, Briggs & Hartley 1981) and like *E. compressa* occurs in areas subjected to rapid agricultural expansion in recent years.

Etymology. The specific epithet is taken from the milky exudate which occurs on the branches and leaves.

3. **Eremophila nivea** Chinnock, sp. nov. (Figure 3)

Frutex lanatus *foliis* alternis vel aliquot interdum oppositis, linearibus, acutis, marginibus incrassatis; *sepalis* 5, imbricatis, triangularibus usque lanceolatis, acuminatis; *corolla* lilacina, extra glabra vel paucis pilis dispersis, lobis obtusis; *staminibus* inclusis, glabris; stylo piloso; *fructu* sicco, ovoideo, manifeste rostrato, glabro.

Typus: R.J. Chinnock 4916, 30.ix.1979 (holo: AD; iso: PERTH).

Shrub to 1.6 m tall with branches, leaves, pedicels and sepals (outer surface) completely clothed in white to greyish white lanate tomentum. *Branches* terete, non-tuberculate, hairs branched and often floccose in older parts. *Leaves* sessile, alternate but occasionally with a few opposite, linear, (6)8-18(22) x 1.5-3.5 mm, acute, margins entire, slightly revolute, thickened. *Flowers* 1 or 2 per axil; pedicel 2-5.5 mm long, terete. *Sepals* 5, imbricate, tips purplish black sometimes visible through indumentum, subequal, triangular to lanceolate, 7-11 x 0.7-2.5 mm, acute to attenuate, inside surface glabrous below, with dense white branched hairs above especially towards the margins. *Corolla* 15-23 mm long, lilac, tube white inside on the lower side, faintly lilac to brownish spotted, 2-lipped, outside surface glabrous or with a few scattered branched hairs, inside of tube arachnoid hairy and lobes glabrous; lobes obtuse, medial one of lower lip dilated, emarginate. *Stamens* 4, included, glabrous. *Ovary* ovoid, c. 3 x 1 mm, pale yellow, quadrilocular with one ovule per loculus, glabrous; style eccentric, pilose. *Fruit* ovoid, 4-5 x 2.2-2.6 mm, prominently beaked, splitting at apex, glabrous; exocarp buff-coloured, papery, endocarp brown, smooth. *Seed* ovoid, c. 1.5 x 0.7 mm, buff-coloured.

Specimens examined. WESTERN AUSTRALIA: *C. Chapman* s.n., 10.x.1975 (NSW 108470); *R.J. Chinnock* 3710, 15.viii.1977 (AD).

Distribution and habitat. Eremophila nivea is known only from the type population which occurs along one kilometre of road near Three Springs, Avon Botanical District (Map 1). The plants grow under scattered *Eucalyptus* trees on brown clay loam.

Affinities. This species is allied to *Eremophila eriocalyx*, sharing with this species a branched indumentum on the vegetative parts, thickened revolute leaf margins and glabrous fruits. It differs from *E. eriocalyx* in the more dense persistent indumentum, the glabrous, or almost glabrous corolla, the open corolla throat, the shorter pedicel and sepals.

Conservation status. The only known population consists of less than two hundred individuals and is enclosed on either side by cultivated land. Any roadside clearing could

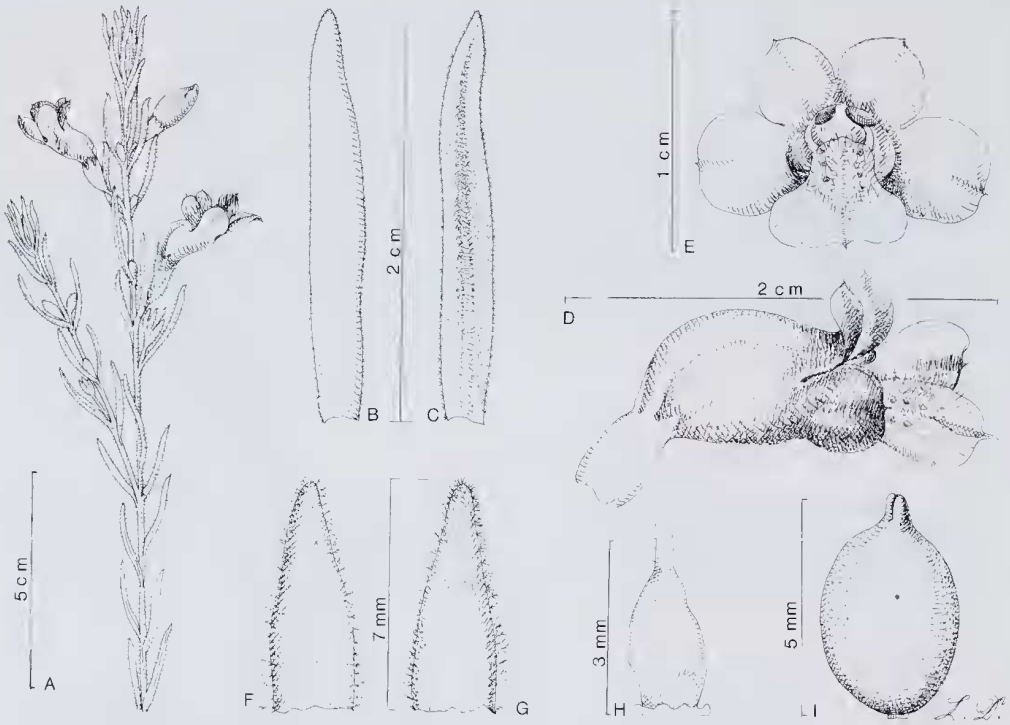


Figure 3. *Eremophila nivea*. A — Habit of branch. B and C — Upper and lower surface of leaf. D and E — Side and front view of corolla. F and G — Outside and inside surface of sepal. H — Ovary and lower part of style. I — Fruit.
A — I based on Holotype.

deeimate the population and aecordingly its eonservation status is 2E (after Leigh, Briggs & Hartley 1981). Fortunately *E. nivea* has eonsiderable hortieultural merit and is widespread in cultivation, especially in South Australia.

Etymology. The speeifie epithet refers to the indumentum of this speeies.

4. **Eremophila verticillata** Chinnock, sp. nov. (Figure 4)

Frutex humilis effusis odorem graveolentum emittens, *ramis* sparse ad dense hirsutis; *foliis* ternato-vertieillatis, appressis, oblongis obtusis; *floribus* sessilibus; *sepalis* 4, valvatis, linearibus usque lanceolatis, acutis, extra glabris, intra glandulifero-pubeseentis; *corolla* purpurea, extra pubescentia, lobis obtusis; *staminibus* inclusis, glabris; stylo glabro; *fructu* sieco, ovoideo, rostrato, crustaceo, hirsuto.

Typus: R.J. Chinnock 4369, 12.xi.1978 (holo: AD; iso: BRI, K, MEL, MO, NSW, NT, PERTH, US).

Low spreading shrub up to 0.8 m high and 1 m diameter, emitting a strong, slightly offensive odour. *Branches* terete, erect or spreading, non-tubcreulate, sparsely to densely hirsute. *Leaves* sessile, in whorls of 3, appressed to braneh es, green to purplish, fleshy, narrowly oblong, 2.5-6 x 1 mm, obtusc, hirsute on adaxial surfaee, obscurely glandular-papillose on abaxial surface. *Flowers* 1 per axil, sessile. *Sepals* 4, valvate, green, subequal, linear to lanceolate, (1)1.5-5 x 0.3-1 mm, aeute, outside surfaee glabrous or glandular-

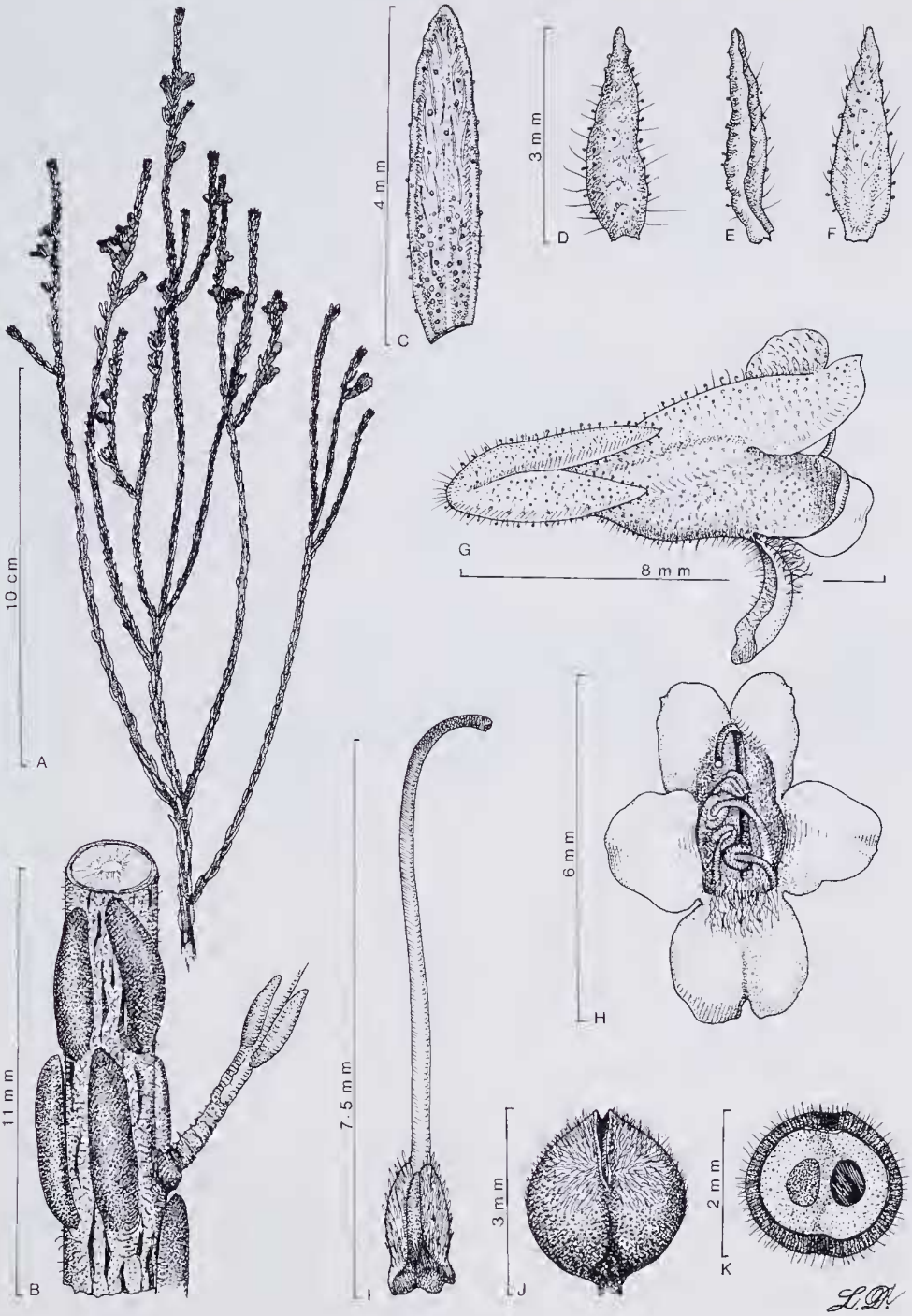


Figure 4. *Eremophila verticillata*. A — Habit. B — Enlargement of branch to show appressed leaves. C — Adaxial leaf surface. D to F — Outside surface, side view and inside surface of sepal. G and H — Side and front view of flower. I — Gynecium. J and K — Side and cross-section of fruit.

A — I based on Holotype.

pubescent, inside surface glandular-pubescent. *Corolla* (5)8-11 mm long, violet, but inside of tube white on lower side and purple spotted, 2-lipped, outside surface pubescent, hairs consisting of short glandular and longer eglandular ones, lower half of medial lobe of lower lip villous, with hairs extending down tube below lobe; lobes obtuse, medial lobe of lower lip dilated, emarginate. *Stamens* included, glabrous. *Ovary* ovoid, c. 1.5 x 0.5 mm, green, bilocular with one ovule per loculus, hirsute; style glabrous. *Fruit* dry, ovoid, 2-3 x 1-2.5 mm, beaked and slightly separated into two at apex, hirsute with short glandular and longer eglandular hairs. *Seed* unknown.

Specimens examined. WESTERN AUSTRALIA: *R.J. Chinnock* 4370, 4375, 12.xi.1978 (AD); *P.D. Luscombe* s.n., 6.xii.1979 (AD, PERTH); *J.W. Wrigley* 5625, 7.xi.1968 (AD, CBG).

Distribution and habitat. E. verticillata is known only from a few localities in the Roe Botanical District (Map 1).

At Lake Cobham *Eremophila verticillata* occurred on powdery brown loam in an open low *Eucalyptus* woodland of *E. longicornis, E. annulata* and *E. floctoniae.* It was associated with *Maireana erioclada* and *Threlkeldia diffusa.*

Affinities. Eremophila verticillata is very closely allied to *E. ternifolia* but differs in having smaller, narrower appressed leaves and a fruit in which the carpels are neither unequal nor free in the upper half.

Conservation status. As far as I am aware the population between Kalgarin and Pingaring was destroyed in early 1980 during vegetation clearance but fortunately plants from this population are in cultivation in Adelaide. The population on the Lake King-Newdegate road (*Wrigley* 5625) could not be located although searched for in two successive years. The two populations at Lake Cobham are adjacent to the road and any roadside clearance could decimate them. The conservation status of this species according to Leigh, Briggs & Hartley (1981) is 2E.

Etymology. The specific epithet refers to the whorled leaves.

5. **Myoporum turbinatum** Chinnock, sp. nov. (Figure 5)

Frutex glaber, viscidus, saepe spiculatis in ramis, foliis, floribusque, ramis tuberculatis; *foliis* alternis, erectis, linearibus complanatis subteretibus in dimidio distali dentatis, tuberculatis; *sepalis* valvatis anguste triangularibus; *corolla* alba vel suffuse lilacina, extra glabra, lobis obtusis; *staminibus* exsertis, glabris; *fructu* sicco, tubinato in dimidio distali manifeste complanato et rostrato, 4-costato ad 4-alato, alis membranceis et translucidis saltem apicem versus, glabro.

Typus: K. Newbey 7915, 9.xi.1980 (holo: PERTH, iso: AD, CANB, K, MEL).

Erect shrub to 4 m high, at first multistemmed and broom-like, but eventually consisting of one or a few long slender erect stems with leafy branches restricted to uppermost part. *Branches* greenish brown, light brown to purplish brown in older parts, prominently tuberculate, glabrous, glandular-papillose, viscid, more or less granulate and frequently spiculose at least when dry. *Leaves* sessile, alternate, erect, straight or incurved, deep green or immature leaves sometimes reddish brown, linear, flat to subterete, (10.5)15-50(80) x 0.5-1(1.5) mm, uncinate, margin with small conical teeth especially in the distal half, surface tuberculate and often spiculose, midrib distinctly grooved on both surfaces, glabrous, viscid, shiny. *Flowers* 4 to 8 per axil; pedicel 1.5-4.5 mm long, dilated in upper part and 5-ribbed when dry, glabrous, glandular-papillose, viscid. *Sepals* 5, valvate, green, narrowly

triangular, c. 1 x 0.3 mm, keeled, glabrous. *Corolla* 2.5-4.5 mm long, almost rotate, white but often tinged lilac, unspotted or with irregular sized blotches on lower half of lobes and in tube; glabrous outside but often spiculose when dry, inside of lobes and tube with a few scattered hairs; lobes obtuse, equal in size but one distinctly pouched. *Stamens* 4, exserted, glabrous. *Ovary* conical but obscurely 4-sided, 1-1.5 x 0.5 mm, purplish black, bilocular with one ovule per loculus, rugose to tuberculate, glabrous; style glabrous. *Fruit* dry, turbinate, 3-4.5 x 1.5-2.5 mm, prominently flattened and beaked in distal part, 4-ribbed to 4-winged, wings membranous and translucent at least near apex, glabrous.

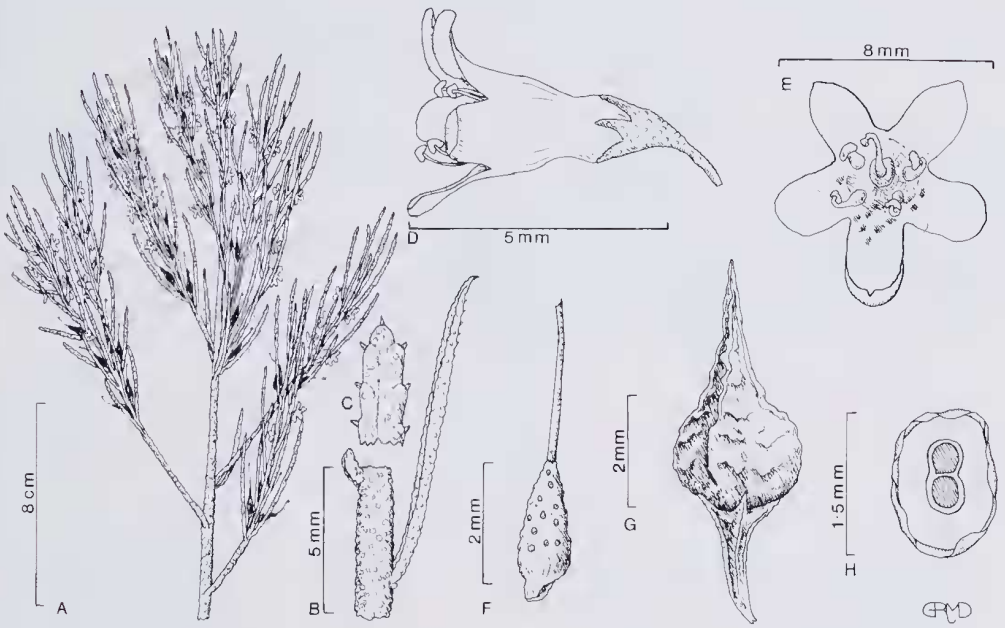


Figure 5. *Myoporum turbinatum*. A — Habit. B — Enlargement of branch. C — Leaf apex showing teeth. D and E — Side and front view of flower. F — Ovary and lower part of style. G and H — Side view and cross-section of fruit.

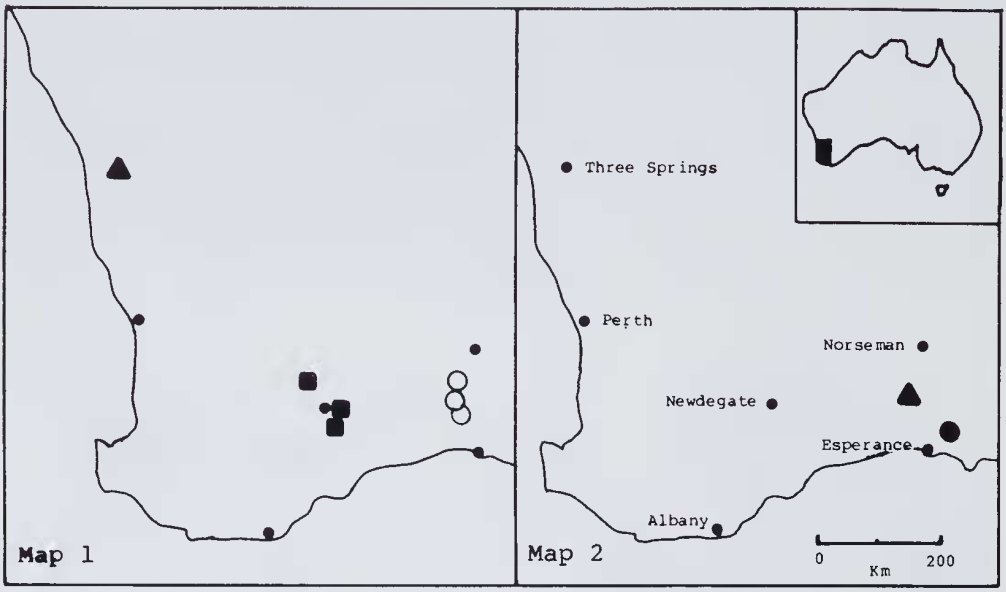
A — H based on Holotype.

Specimens examined. WESTERN AUSTRALIA: *R.J. Chinnock* 5547, 7.xi.1981 (AD, CANB, PERTH); *R.J. Chinnock* 5449, 7.xi.1981 (AD, B, BRI, K, MEL, W).

Distribution and habitat. Myoporum turbinatum is known only from road verges in a small area north-east of Esperance, in the eastern Roe Botanical District (Map 2) where it occurs on sandy pedal duplex soils on the margins of saline depressions in mallee/heath scrub. Areas adjacent to the known populations are under cultivation. The conservation status of this species is 2E according to Leigh, Briggs & Hartley (1981).

Affinities. Myoporum turbinatum belongs to section *Disoon* (DC.) Benth. and would appear to be closely related to *M. platycarpum* R.Br., sharing with this species a similar fruit although not flattened in the lower half. In addition, the dentitions of the leaf of both species are comparable and sometimes one corolla lobe of *M. platycarpum* is pouched.

Etymology. The specific epithet is taken from the fruit shape.



Map 1. Distribution of *Eremophila compressa* (circle), *E. nivea* (triangle) and *E. verticillata* (square).

Map 2. Distribution of *Eremophila lactea* (triangle) and *Myoporum turbinatum* (solid circle).

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